

Increases in SX/EW production have resulted from an expansion at Asarco's Ray mine in Arizona, and from new SX/EW projects at its Silver Bell mine in Arizona and Toquepala mine in Peru. SX/EW production at Ray is expected to increase to an annual rate of 100M lb of copper in 1999 at a cash cost of less than 50¢/lb. SX/EW production at Silver Bell is expected to be more than 40M lb in 1999, more than 16% above design capacity, at a cash cost of less than \$0.50/lb.

SX/EW operations at Toquepala in southern Peru produced 104M-lb refined-cathode in 1998, and a \$45M expansion project now under way will add 26M lb production annually. The cash cost will be less than 40¢/lb.

McAllister noted that the Toquepala SX/EW expansion is one part of a major expansion and modernization program at SPCC. First stage of the program, completed late last year, adds 130M lb/yr of copper production. Total production at the Cuajone mine will increase to 455M lb in 1999. SPCC also is proceeding with plans to modernize and expand its Ilo smelter, increasing smelter capacity to 1.25M-st concentrate to match SPCC's expanded mine output. Engineering is under way and construction is expected to begin in 2000 for the smelter project.

Asarco's aggregates business, which sells construction aggregates, ready-mix concrete and agricultural limestone, also had strong growth, according to McAllister, with operating income increasing from \$6M in 1988 to \$15M in 1998. Expected growth in road construction over the next five years is expected to further enhance growth in the aggregates business and Asarco intends to continue to invest in this business, McAllister said.

Utah

Rio Tinto Ltd. announced in mid-January that the rebuild of the flash converting furnace at the Kennecott Utah Copper smelter would take about five to eight wk, depending on the results of further inspection and assessment. The rebuild will include new refractory and the replacement of several cooling elements.

The furnace failed on Jan. 8. Inspection showed that blister copper exited the furnace through a cooling element, causing damage to other nearby cooling elements in the furnace's south-end side wall.

The furnace was expected to return to full production within a few days of its repair and startup. As a result of furnace failure, Kennecott advanced the rebuild of the furnace and other scheduled maintenance work, making a previously scheduled maintenance shutdown later in the year unnecessary.

Kennecott anticipated that the shortfall in copper production will be mitigated to some extent by the sale of intermediate products such as copper matte.

Clifton Mining Co. announced that it has secured the necessary permits to pump water from its Cane Springs mine, making it ready for mining soon, said William Moeller, president of Clifton Mining Co. Assays from the lower levels of the Cane Springs mine are averaging more than 1 oz/st gold. "We are committed to getting the mine back on stream and are confident that it will be done quickly and effectively," said Moeller.

Clifton has assets in the northern Deep Creek Mountains of west-central Utah in the Clifton Mining District. The company claims millions of ounces of silver and thousands of ounces of gold resources. Clifton has been processing its reserves since October 1998 via a gravity/flotation mill on its property. Capacity totals 1,200 st/d with a second mill under construction that will add 750 st/d capacity.

Plateau Resources Ltd. has received a ground water quality discharge permit from the Utah Department of Environmental Quality for its Shootaring Canyon uranium mill in southeastern Utah. Plateau Resources, a wholly owned subsidiary of U.S. Energy Corp., received license approvals from the Nuclear

Regulatory Commission in May 1997 to resume operations at Shootaring Canyon. The 750-st/d mill was the last mill built in the U.S. in 1981-82 and operated for only two months before it was placed in a standby mode. Plateau planned to submit its final tailings liner design to the NRC by mid-April 1999, and expected NRC approval within 90 days.—LW

Washington, D.C.

The Civil Engineering Research Foundation (CERF) and Australia's Commonwealth Scientific and Industrial Research Organization (CSIRO) signed a Memorandum of Understanding last week to further innovative design and construction research and technology implementation. The MOU will combine CERF's expertise in technology evaluation with CSIRO's research, testing and evaluation capabilities and activities.

The CERF-CSIRO MOU was signed at the conclusion of World Federation of Technical Assessment Organizations (WFTAO) Annual Meeting in Australia. CERF is a founding member of WFTAO. Via MOU, CERF, and CSIRO will work closely to share information on innovation and identify ways to expedite the introduction of innovative technologies into the global marketplace, with special emphasis put on Asia, the environment and highways—in particular working with two CERF Innovation Centers, EvTEC, and HITEC.

CSIRO provides independent leading-edge research, consulting and testing services to support, advance, and innovate the construction industry. CERF works to expedite innovation into the design and construction marketplace, most markedly through Innovation Centers operated in the areas of highways (HITEC), the environment (EvTEC), public works (CEITEC), and buildings (NES-BIC). The centers have become well-known for objective,

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R3H 0N1, CANADA

Tel: (204) 697-2586 Fax: (204) 697-2592

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